

Universal Trail Assessment Process (UTAP) & High Efficiency Trail Assessment Process (HETAP)

Coordinator Workshop



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Introductions

Name

Where are you from

Who do you work for/represent

Why UTAP Interest

What do you hope to gain

Workshop Goals

Know the development of UTAP and
HETAP (High Efficiency Trail
Assessment Process)

Understand UTAP concepts, benefits
and measurement techniques

Workshop Goals

Use UTAP and HETAP for diverse environments and objectives

Obtain practical experience

Perform and lead assessments

Workshop Topics

Morning

Introductions &
Overview

Tool Function

Measurements

Application of
UTAP/HETAP

Afternoon

On-Trail Practical

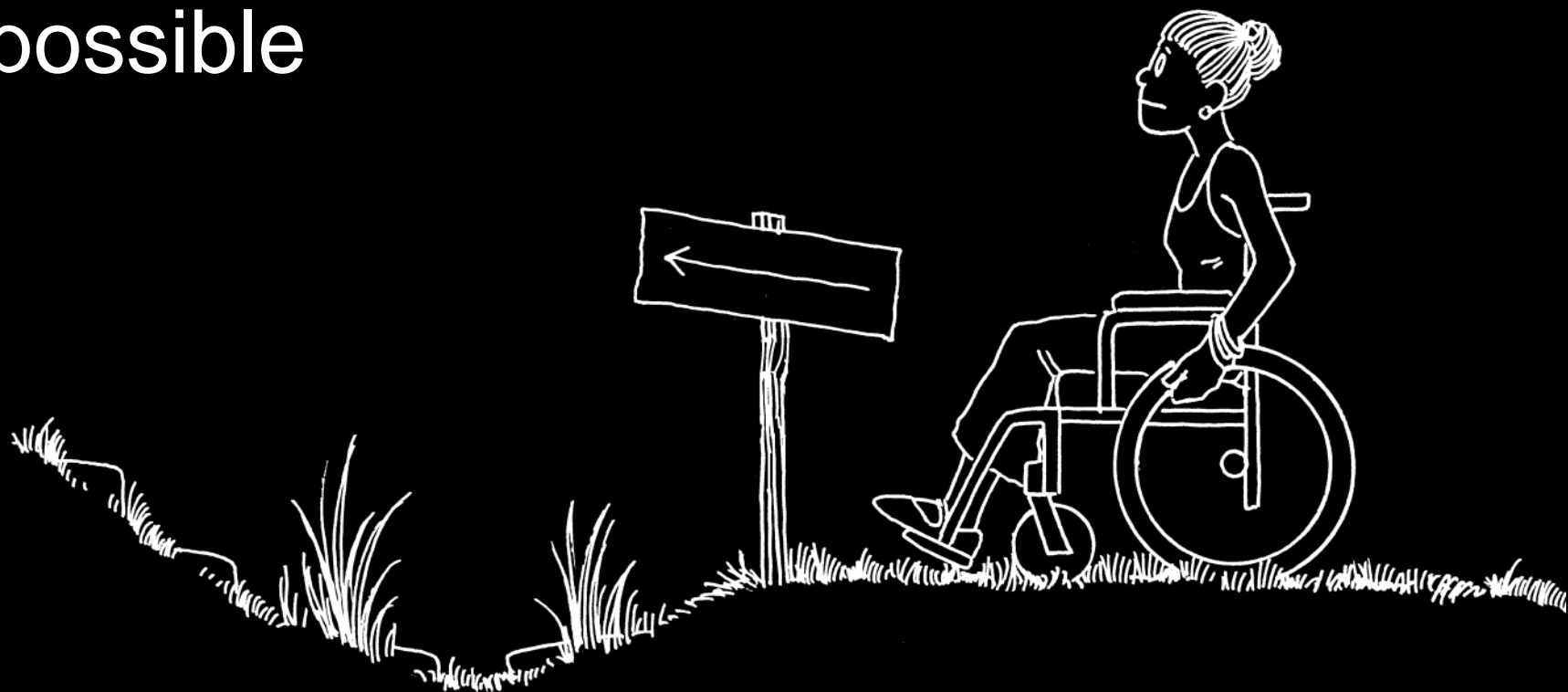
Data Analysis & Use

Debrief, Review &
Questions

Certification Process

Greatest Barrier to Outdoor Facility and Trail Use

Lack of knowledge about actual on-site conditions or about where access is possible



Need for Trail Assessment

All users and land managers need accurate trail data



Objective trail information is very limited, but it enables informed decisions about trail use and conservation

Subjective information is not related to individual abilities

Trail Assessment Options

Universal Trail
Assessment
Process (UTAP)



High Efficiency
Trail Assessment
Process (HETAP)



UTAP & HETAP Generate Objective Information

Access and Use

Construction and Maintenance

Mapping and Interpretation

Environmental Protection and
Management

Compliance with Design Standards

Assessment and Compliance

Inventory existing facilities and infrastructure – Asset Management

Determine compliance with existing ABA for Developed Outdoor Recreation facilities

Create transition plan with goals and objectives for accomplishing access

Universal Design

Philosophy that designs for all potential users to the greatest extent possible

Principles include:

- equitable use
- flexible use
- simple & intuitive use
- perceptible information
- tolerance for error
- low physical effort
- size and space for approach and use

UTAP Research & Development Project of Beneficial Designs, Inc.

Funded by the National Center for
Medical Rehabilitation Research in the
National Institute of Child Health and
Human Development at the National
Institutes of Health SBIR Grant #R44
HD29992-03

UTAP Development Partners

Bureau of Land Management (DOI)

Bureau of Reclamation (DOI)

National Park Service (DOI)

US Army Corps of Engineers

US Fish & Wildlife Service (DOI)

US Forest Service (USDA)

UTAP Development Partners

American Trails

California State Parks

Minnesota Department of
Natural Resources

National Center on Accessibility

Wilderness Inquiry

Key Variables for UTAP

Measured many trail factors

Matched objective variables with
user expectations and experience

Matched objective
variables with
trail experts and
their knowledge
of trail



Relation to User Perceptions

Users of all abilities view trail information before hiking

Expectations prior to trail use

Experience after trail use



UTAP Research Results

Identify key variables

Validity

Repeatability

Relation to user perceptions

Validity of UTAP/HETAP

Measure & record in 2 foot intervals

Calculate trail access information

Expert review of information accuracy

Typical grade & cross slopes within 1%



Repeatability of UTAP/HETAP

Same UTAP leader, different days

Same UTAP leader, different years

Different UTAP leader, same day

All comparisons were repeatable except washouts or landslides

Storm damage recorded as features and maximum cross slopes

UTAP Tools



**What types of information
do you display for your
trail?**

Key UTAP & HETAP Information

Length



Grade



Width



Surface



Cross
slope



Features &
Facilities



HETAP and UTAP is suitable for any trail or path of travel in an outdoor environment.

What are different types of trails?

Shared Use Path



Urban Shared Use Paths



Neighborhood Connector Trails



Recreation Trail (Front Country)



State Parks/ Day Use Areas/ Interpretive Trails



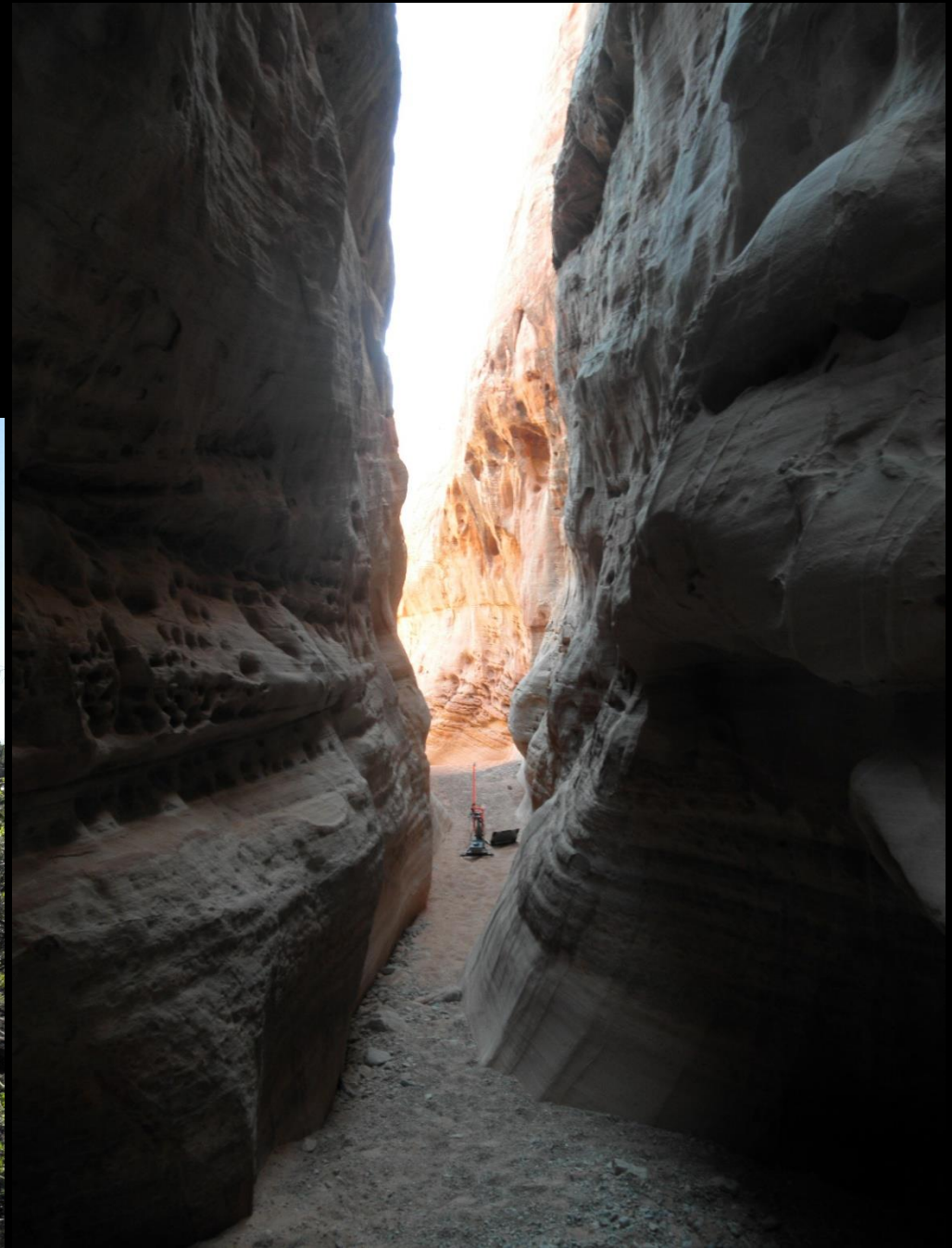
Front Country Trails



Recreation Trail (Back Country)



Narrow Trails



Backcountry single track trails



Cross Country Trails



Snowshoe Trails



Snowmobile Trails



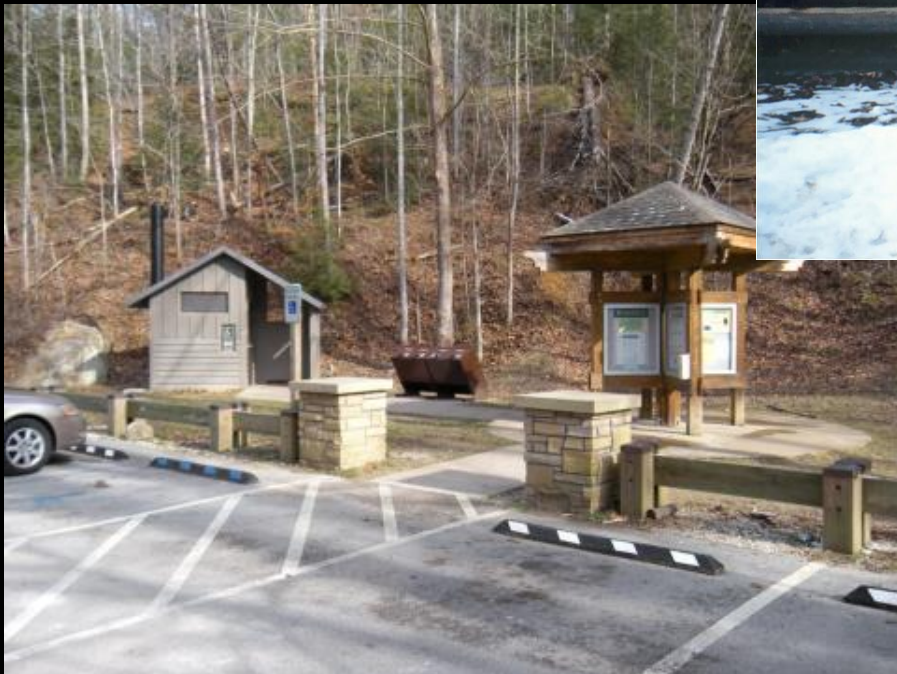
Mountain Bike Trails



Motorized Trails



Outdoor Recreation Access Route (ORAR)



Paths of Travel at Recreation Facilities



UTAP Records Typical and Extreme Values

Grade

Cross Slope

Width

<u>Trail</u>	Grade (%)		Cross Slope (%)	
	<u>Typ</u>	<u>Max</u>	<u>Typ</u>	<u>Max</u>
Kersey Lake	5	70	11	32
Indiana Falls	8	10	16	19

Surface

Firmness Category
Surface Type



Features and Facilities

Location

Type

Description

Dimensions

Quantity



Feature Example



Scenic
Viewpoint

Feature Examples

<u>Feature</u>	<u>Dist</u>	<u>Zone</u>	<u>Size</u>	<u>Rem.</u>
Rock	50	TB	11x23x7	48
Rock	60	TB	10x23x6	17
Rock	70	VF	11x22x8	n/a
Rock	5020	TB	12x22x7	12

Trail Access Information (TAI) to Convey to Users

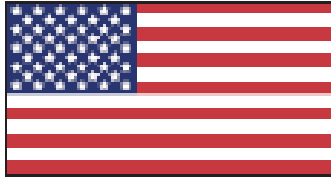
Grade

Cross Slope

Tread Width

Surface


Obstructions





Ruins Loop


Fort Churchill
State Historic Park


Length 0.6 mi (1.0 km)


 Hikers

 Bikes

 Dogs OK

 Equestrians

 No Motorized Vehicles


 Grade

Typical Grade 2.6%

8% of the trail is 5% to 12%

23 ft (7 m) is 12% to 17%

8% grade is a standard ramp

 Cross Slope

Typical Cross Slope 5.9%

13% of the trail is 10% to 15%

455 ft (139 m) is 15% to 28%

8% grade is a standard ramp

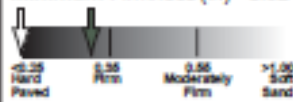
Tread Width

Typical 19 in (48 cm)
Minimum 12 in (31 cm)

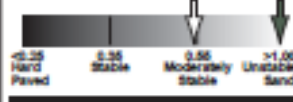
Surface

Soil
3% of the trail is Soft

Typical Firmness (In) 0.21
Minimum Firmness (In) 0.32



Typical Stability (In) 0.54
Minimum Stability (In) 1.03



Obstructions

Multiple 6 in (15.2 cm) Rocks

WARNING: Trail conditions may have changed since January 2008 when this trail was assessed. Temporary obstacles were not mapped.

Signage created by Beneficial Designs Inc. using data collected by a certified trail assessment coordinator.

Trail Access Information



Dune Trek
Dune Trek Trail

Length: 2.4 mi (3.9 km)
Trail Type: Hike, Run, Bike
Difficulty: Easy

Icons:
Hike, Run, Bike, Dog on Leash, Expert/Advanced, No Motorized Vehicles, Grade

Grade:
Normal Grade: 8.2%
Steepest Grade: 10% to 12%
Shallowest Grade: 5% to 6%
Average Grade: 8.2%

Cross Slope:
Normal Cross Slope: 4.2%
Steepest Cross Slope: 6% to 8%
Shallowest Cross Slope: 2% to 3%
Average Cross Slope: 4.2%

Tread Width:
Normal: 50 to 60 in.
Steepest: 40 to 50 in.

Surface:
Surface Type: Sand
Stability of Soil: Very Soft
Stability of Rock: Stable
Normal Firmness: 1.5 to 2.0
Steepest Firmness: 1.0 to 1.5
Shallowest Firmness: 2.0 to 2.5
Average Firmness: 1.5 to 2.0

Trail Conditions:
Normal: 1.5 to 2.0
Steepest: 1.0 to 1.5
Shallowest: 2.0 to 2.5
Average: 1.5 to 2.0

Trail Map:
Trail Map: 1.5 to 2.0
Steepest: 1.0 to 1.5
Shallowest: 2.0 to 2.5
Average: 1.5 to 2.0



Eisenhower Park Trails



- LEGEND**
- Bridge
 - Parking
 - Restroom
 - Park Entrance
 - Drinking Water
 - Shelter/Pavilion
 - River/Creek
 - Road

A Trail Access Information

Trail Name	Length	Trail Width	Maximum Grade	Trail Cross Slope	Maximum Cross Slope	Trail Clear Width	Minimum Clearance	Surface Type
Red Oak Trail	0.5 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel
Shady Creek Trail	0.5 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel
Cedar Hills Trail	0.5 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel
McView Forest Trail	1.0 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel
Shady Creek Trail	0.5 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel
Observation Tower Trail	0.1 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel
Line Oak Trail	0.5 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel
Official Park Trail	0.5 mi	7.5'	10.0% & 10% - 10%	1.0%	10.0% & 10% - 10%	4.0'	10.0'	Gravel

B Trail Access Information

Balance, HRR, and other logos are present at the bottom of the table.

Eisenhower Park Trails

A Trail Access Information Typical Trail Qualities

Trail Name	Length	Typical Grade	Maximum Grade Standard Ramp is 8.3%	Typical Cross Slope	Maximum Cross Slope	Typical Tread Width	Minimum Clearance Width	Surface Type
Red Oak Trail	0.5 mi	7.1%	78 ft is 20% - 29%	5.7%	78 ft is 20% - 22%	48 in	48 in	Aggregate / Gravel
Shady Creek Trail	0.4 mi	5.4%	66 ft is 15% - 29%	4.4%	145 ft is 13% - 17%	44 in	36 in	Aggregate / Gravel
Cedar Flats Trail	0.8 mi	4.3%	133 ft is 15% - 21%	3.5%	87 ft is 9% - 10%	84 in	84 in	Asphalt
Hillview Natural Trail	2.6 mi	4.8%	353 ft is 21% - 37%	3.5%	231 ft is 15% - 26%	55 in	36 in	Crushed Stone (Fines)
Yucca Paved Trail	1.6 mi	4.0%	67 ft is 21% - 39%	3.3%	111 ft is 16% - 24%	72 in	30 in	Wood Chip / Mulch
Observation Tower Trail	0.1 mi	4.7%	124 ft is 11% - 17%	2.9%	45 ft is 6%	96 in	96 in	Asphalt
Live Oak Trail	0.1 mi	4.5%	33 ft is 11% - 15%	4.2%	65 ft is 10% - 19%	60 in	60 in	Wood Chip / Mulch



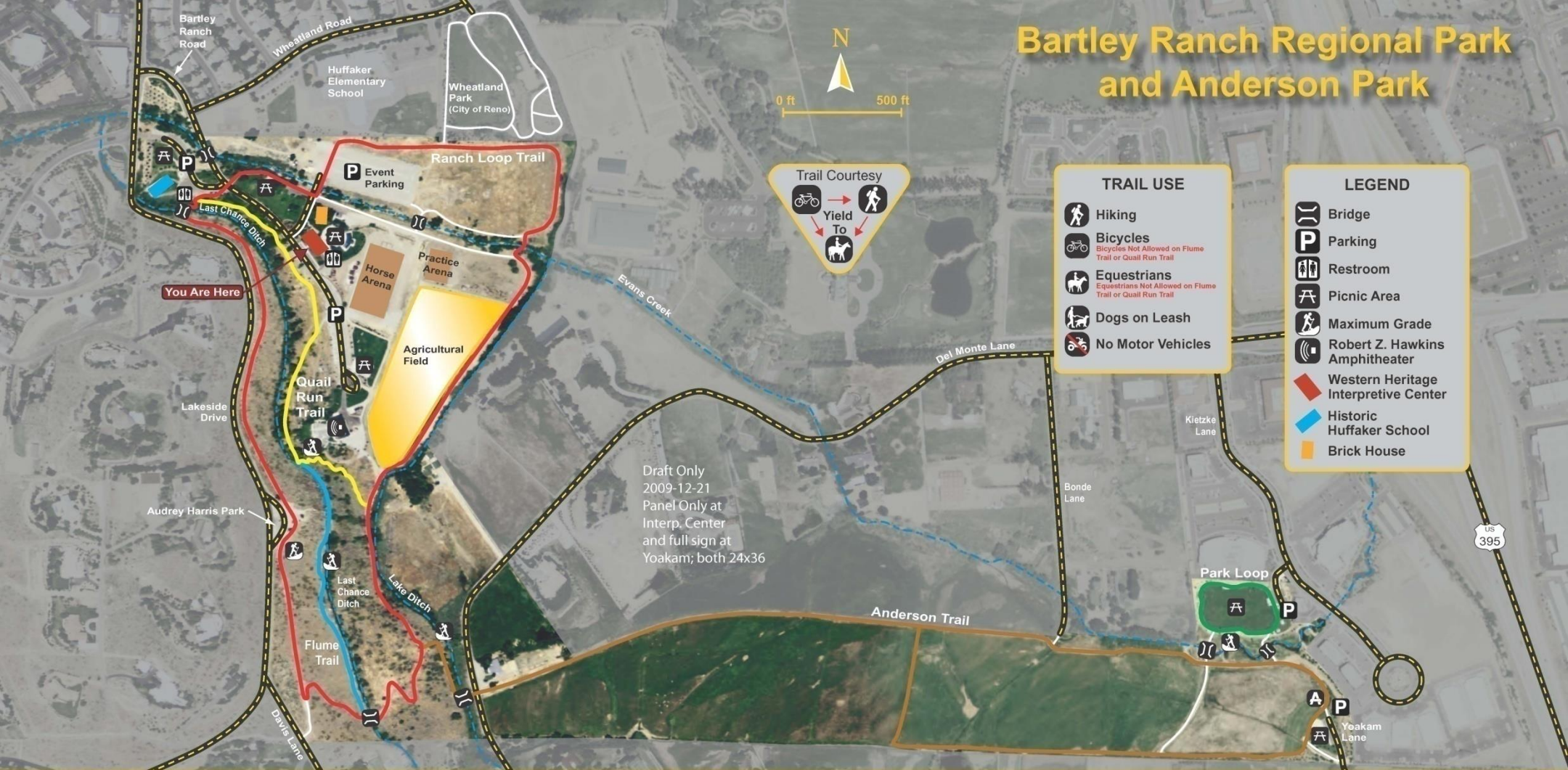
WARNING:

Trail conditions may have changed since March 2011 when these trails were assessed. Signage created by Beneficial Designs Inc. using trail data collected by a certified trail assessment coordinator.

Trail Name	Length	Typical Grade	Maximum Grade	Typical Cross Slope	Maximum Cross Slope	Typical Tread Width	Minimum Clearance Width	Surface Type
Red Oak Trail	0.5 mi	7.1%	78 ft is 20% - 29%	5.7%	78 ft is 20% - 22%	48 in	48 in	Aggregate / Gravel
Shady Creek Trail	0.4 mi	5.4%	66 ft is 15% - 29%	4.4%	145 ft is 13% - 17%	44 in	36 in	Aggregate / Gravel
Cedar Flats Trail	0.8 mi	4.3%	133 ft is 15% - 21%	3.5%	87 ft is 9% - 10%	84 in	84 in	Asphalt
Hillview Natural Trail	2.6 mi	4.8%	353 ft is 21% - 37%	3.5%	231 ft is 15% - 26%	55 in	36 in	Crushed Stone (Fines)
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Live Oak Trail	0.1 mi	4.5%	33 ft is 11% - 15%	4.2%	65 ft is 10% - 19%	60 in	60 in	Wood Chip / Mulch



Bartley Ranch Regional Park and Anderson Park



TRAIL USE

- Hiking
- Bicycles
Bicycles Not Allowed on Flume Trail or Quail Run Trail
- Equestrians
Equestrians Not Allowed on Flume Trail or Quail Run Trail
- Dogs on Leash
- No Motor Vehicles

LEGEND

- Bridge
- Parking
- Restroom
- Picnic Area
- Maximum Grade
- Robert Z. Hawkins Amphitheater
- Western Heritage Interpretive Center
- Historic Huffaker School
- Brick House



Trail Name	Length	Typical Grade	Maximum Grade	Typical Cross Slope	Maximum Cross Slope	Typical Trail Width	Minimum Clearance Width	Surface Type	Surface Firmness		Surface Stability	
									Typical	Worst	Typical	Worst
Ranch Loop Trail	1.5 mi	4.5%	371 ft is 16% – 25%	2.8%	18 ft is 16% – 20%	90 in	40 in	Aggregate/Gravel	0.19	0.22	0.36	0.60
Quail Run Trail	0.4 mi	7.3%	186 ft is 20% – 40%	3.5%	46 ft is 18% – 30%	60 in	25 in	Aggregate/Gravel	0.19	0.22	0.39	0.50
Flume Trail	0.2 mi	4.6%	37 ft is 14% – 19%	3.9%	47 ft is 12% – 14%	48 in	20 in	Soil	0.23	0.25	0.38	0.49
Anderson Trail (Round Trip)	1.7 mi	2.5%	196 ft is 14% – 21%	2.4%	311 ft is 7% – 11%	76 in	48 in	Aggregate/Gravel	0.19	0.22	0.39	0.52
Park Loop	0.2 mi	1.6%	64 ft is 4% – 5%	1.8%	230 ft is 3% – 4%	84 in	84 in	Aggregate/Gravel	0.18	0.19	0.37	0.43



WARNING: Trail conditions may have changed since September 2009 when these trails were assessed. Secondary trails are shown in white. Signage created by Beneficial Designs Inc. using data collected by a certified trail assessment coordinator.



Lampe Park

Rough Draft Only
2009-12-23
1 at 24" x 36"
Panel Only



Funded by the Nevada Recreational Trails Program

TRAIL USE

- Hiking
- Bicycles
- No Dogs
- No Equestrians
- No Motor Vehicles

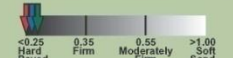
LEGEND

- Bridge
- Parking
- Restroom
- Skate Park
- Playground
- Picnic Area
- Horseshoes
- Soccer Field
- Tennis Court
- Batting Cage
- Group Pavilion
- Sand Volleyball Court
- Park Boundary

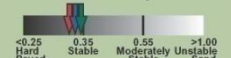


Trail Name	Outer Loop Trail	Inner Loop Trail	Senior Center Trail
Length	0.8 miles	0.6 miles	0.2 miles
Typical Grade	1.3%	1.1%	1.5%
Maximum Grade	17 feet is 5 – 8%	41 feet is 3 – 5%	27 feet is 5 – 6%
Typical Cross Slope	1.5%	1.0%	1.1%
Maximum Cross Slope	142 feet is 5 – 6%	246 feet is 4 – 6%	63 feet is 3 – 5%
Typical Tread Width	10 feet	12 feet	9 feet
Minimum Clearance Width	49 inches	8 feet	7 feet
Surface Type	Decomposed Granite/Pavers	Decomposed Granite/Pavers	Decomposed Granite
Typical Surface Firmness	0.20 inches (Worst 0.23 inches)	0.20 inches (Worst 0.23 inches)	0.19 inches (Worst 0.23 inches)
Typical Surface Stability	0.26 inches (Worst 0.33 inches)	0.26 inches (Worst 0.33 inches)	0.28 inches (Worst 0.33 inches)

Surface Firmness (inches)



Surface Stability (inches)



WARNING: Trail conditions may have changed since July 2007 when these trails were assessed. Secondary trails are shown in black. Signage created by Beneficial Designs Inc. using data collected by a certified trail assessment coordinator.



Trail Access Information

PRISON HILL RECREATION AREA · MOTORIZED USE AREA

PERMITTED USES

- OHVs
- Equestrian
- Hiking
- Mountain Bikes
- Dogs Under Control of Owner

LEGEND

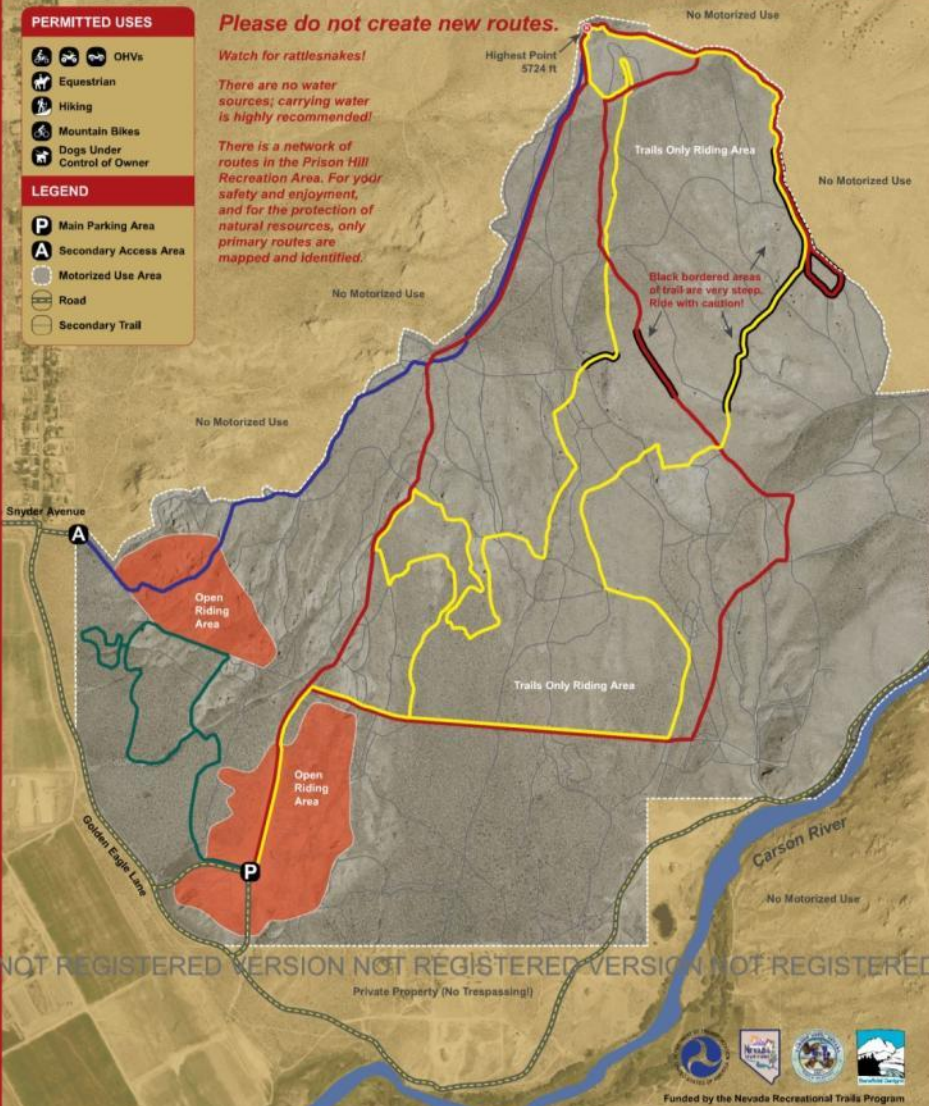
- Main Parking Area
- Secondary Access Area
- Motorized Use Area
- Road
- Secondary Trail

Please do not create new routes.

Watch for rattlesnakes!

There are no water sources; carrying water is highly recommended!

There is a network of routes in the Prison Hill Recreation Area. For your safety and enjoyment, and for the protection of natural resources, only primary routes are mapped and identified.



Funded by the Nevada Recreational Trails Program

A TRAIL

Vehicle Use	Length	Typical Grade	Maximum Grade Standard Ramp is 8.3%	Typical Cross Slope	Maximum Cross Slope	Typical Tread Width	Minimum Clearance Width	Surface Type
Motorcycle Loop	8.0 mi	12.6%	182 ft is 45% - 65%	4.8%	48 ft is 20% - 34%	5.3 ft	1.2 ft	Sand / Soil
Motorcycle/ATV Loop	1.6 mi	7.9%	38 ft is 40% - 51%	5.3%	78 ft is 15% - 21%	5.6 ft	4.0 ft	Sand / Soil
Motorcycle Trail	1.6 mi	12.5%	278 ft is 25% - 42%	5.8%	684 ft is 13% - 23%	8.4 ft	6.0 ft	Sand / Soil
Motorcycle/ATV/Jeep Loop	5.5 mi	10.9%	149 ft is 35% - 37%	4.2%	83 ft is 15% - 18%	6.6 ft	7.1 ft	Sand / Soil

WARNING: Trail conditions may have changed since September 2013 when these trails were assessed. Signage created by Beneficial Designs Inc. using trail data collected by a certified trail assessment coordinator.

PERMITTED USES

- OHVs
- Equestrian
- Hiking
- Mountain Bikes
- Dogs Under Control of Owner

LEGEND

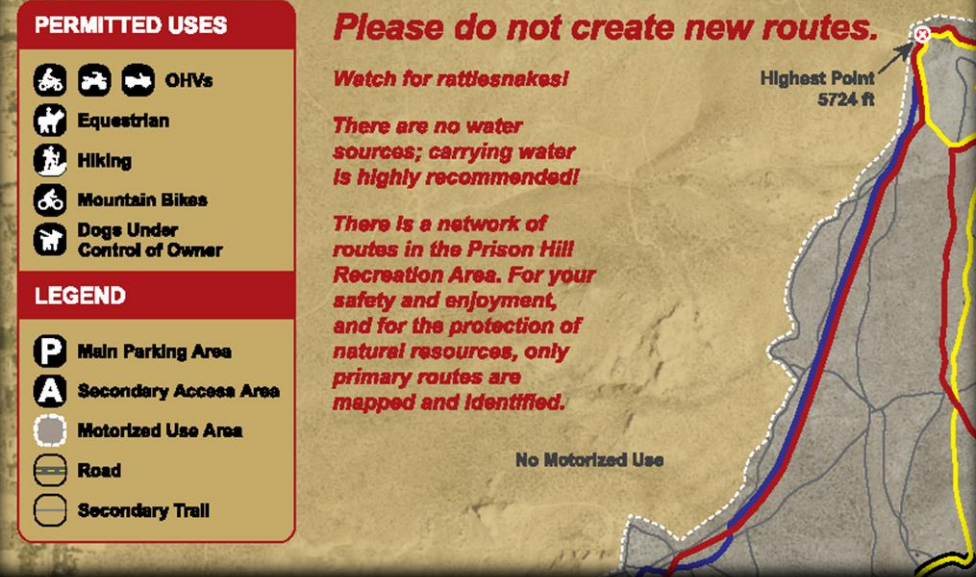
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A TRAIL

Vehicle Use

Length

Typical Grade

Maximum Grade
Standard Ramp is 8.3%

Typical Cross Slope

	Motorcycle Loop	8.0 mi	12.6%	182 ft is 45% - 65%	4.8%
	Motorcycle/ATV Loop	1.6 mi	7.9%	38 ft is 40% - 51%	5.3%
	Motorcycle Trail	1.6 mi	12.5%	278 ft is 25% - 42%	5.8%
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[HOME](#) [ABOUT US](#) [DEFINITIONS](#) [LINKS](#) [TRAIL ACCESS INFORMATION](#)

[TRAIL FEATURES](#)

Customize your search by trail use and features.

[TRAIL ACCESS](#)

Find a trail to suit your ability. Search by grade, cross-slope and surface.

[TRAIL MANAGEMENT](#)

Authorized trail managers may add or edit trail information. Contact [Beneficial Designs](#).

[CONTACT US](#)



QUICK TRAIL SEARCH



Type in (a few letters of) a park or trail name:



OR

View trails by state:



PICK OF THE MONTH



Big Basin Redwoods State Park
Boulder Creek, CA

Features 2,000 year-old redwoods and over 50 miles of trails. Reservations required for camping. Phone: 831.338.8860

Have you ever finished a three hour hike in one hour? Have you struggled on a "moderate" trail? Have you ever encountered barriers on an "easy" trail? If so, you already know the benefits of having objective trail information. The Trail Explorer website conveys objective trail information in a unique [Trail Access Information](#) format to help trail users make informed decisions about which public lands to visit, and which trails will best meet their interests, abilities and desired experiences. Trail Explorer benefits all users, but is particularly helpful for individuals who may have specific trail needs, such as individuals with disabilities, older adults, parents with young children, and novice hikers.

Acknowledgement

Trail Explorer was designed by [Beneficial Designs](#) in collaboration with [American Trails](#), land management, and disability organizations and with the support of the US Department of Education.

[home](#) | [about us](#) | [definitions](#) | [trail access information](#)
[links](#) | [acknowledgments](#) | [disclaimer](#)

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Internet

www.triaexplorer.org

**Who benefits from objective
Trail Access Information
(TAI)?**

People with
Disabilities



Users with limited
experience

Everyone benefits from TAI!



Children

Adults who
are older or
less fit



User Benefits from TAI

Consistent information

Increased independence,
safety, opportunities and
enjoyment

Responsible and informed
trail selection

Knowledge of actual
conditions



Land Manager Benefits

Increased user safety
and satisfaction

Provide more trail
opportunities

Monitoring of
environmental impact



Land Manager Benefits

Identification of work priorities

Enhanced planning & budgeting of projects

Enhanced search and rescue

Provides information for GIS (When use GPS)



Assessment and Compliance

Inventory existing facilities and infrastructure

Determine compliance with existing ADAAG and Developed Outdoor Recreation facilities

Create transition plan with goals and objectives for accomplishing access

UTAP/HETAP Trail Assessment Coordinators

Over 1,050 individuals trained

Federal, state and local trail
management agencies

US, Canada, and other countries

HETAP in Use

Over 20 Units in Service

Florida State Parks

City of Phoenix, AZ

Cities of Edmonton,
Alberta and Toronto,
Ontario

City of Palo Alto, CA

Monterey Peninsula
Regional Park District

National Parks Service –
Saguaro National Park
Golden Gate NRA

ADA Consultants of IN

City of San Antonio, TX

Nā Ala Hele - State of
Hawaii Trail and Access
Program

Overview Summary

Lack of information is the greatest barrier to access

UTAP/HETAP is objective, valid, repeatable and related to user perceptions

Generates and conveys all types of information for all types of trails

Benefits all users and land managers

Focuses on grade, cross slope, surface, width and features

Generates a complete inventory for Asset Management

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*Working toward universal access
through research, design & education*